

REMARKS

Please reconsider the application in view of the above amendments and the following remarks. Applicant thanks the Examiner for carefully considering this application. These amendments supercede all previous amendments not entered and the status of the claims used herein is current.

I. Disposition of Claims

Claims 1-4 are pending in this application. Claims 1 and 2 are independent claims. The remaining claims depend, directly or indirectly, from claim 1. Claims 1 and 2 have been amended in this reply to clarify the present invention. Additionally, claim 5 has been added by this reply. No new matter has been added by way of these amendments.

II. Claim Amendments

The amendments to claims 1 and 2 are fully supported by the specification. Claims 1 and 2 have been amended to recite "wherein a first side part of said half mirror is fixed to a vertical wall of said frame at two points and second side part of said half-mirror is fixed to a vertical wall of said frame at one point by using an adhesive agent." Support for these amendments can be found on pages 4 and 5 of the instant specification.

The specification states, "[t]he half mirror 15 is fixed to the pick-up frame 19 from a side direction, and moreover, it is fixed to the pick-up frame 19 at three points

(three black points in FIG. 3) by using an adhesive agent (not shown in figures)...Two of the three points whereat the half mirror 15 is fixed are located on a wall part 31a of a rib 31 (mentioned below), and another point is located on a wall part 33a of a rib 33 (mentioned below).”

With respect to the addition of claim 5, support for this claim can be found on page 9 of the instant specification. The specification states, “[w]hen assembling the pick-up apparatus 1, the adhesive agent is applied to, for example, one point at a lower part on the wall part 31a and one point on the wall part 33a among the three points at first, and the half mirror 15 is adhered to the determined position at these two points by making approach from a transverse direction. Then, before the adhesive agent dries out, the gradient of the half mirror 15 is determined by fine-tuning the half mirror 15 by using these two points as fulcrums. After determining the gradient of the half mirror 15, the adhesive agent is made exist between one point at the upper part on the wall part 31a and the half mirror 15. Finally, the half mirror 15 is fixed to the pickup frame 19 by curing the adhesive agent by the ultraviolet-ray irradiation.”

As shown above, the amendments of claims 1 and 2 and the addition of claim 5 are fully supported by the specification. Moreover, these amendments do not raise new issues that would require a new search. Therefore, the Applicant respectfully requests the entry of the above amendments.

III. Rejection(s) under 35 U.S.C § 112

Claims 1-4 were rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description. Claims 1 and 2 have been amended in this reply.

To the extent that this rejection applies to the amended claims, this rejection is respectfully traversed.

As previously discussed, claims 1 and 2 have been amended to recite that “wherein a first side part of said half mirror is fixed to a vertical wall of said frame at two points and second side part of said half-mirror is fixed to a vertical wall of said frame at one point by using an adhesive agent.” For the reasons as listed above, claims 1 and 2 are fully supported by the specification. Because claims 1 and 2 are fully supported by the specification, withdrawal of the §112 rejection is respectfully requested.

IV. Rejection(s) under 35 U.S.C § 103

The Present Invention

As recited in claims 1 and 2, the present invention relates to a pickup apparatus for a disk player for optically reading information on a disk, which is arranged in the disk player. The pickup apparatus includes a pickup, a light emitting portion, a half mirror, a detecting portion, and a frame. The pickup is used for irradiating light on the disk and receiving the light reflected from the disk. The light emitting portion transmits light to the pickup. In one or more embodiments of the present invention, the light-emitting portion is a laser diode.

The plate shaped half mirror reflects the light from the light-emitting portion to the pickup. The light emitted from the light-emitting portion may permeate the half

mirror to the detecting portion. The frame “houses” the pickup, the light emitting portion, and the detection portion at predetermined positions.

In particular, a first side part of the half mirror is fixed to a first vertical wall of the frame at two points and a second side part of the half mirror is fixed to a second vertical wall using an adhesive agent. Advantageously, affixing the half-mirror as described in the claimed invention allows for the half mirror to be installed in the frame without means for supporting the half mirror.

The applied references fail to disclose all of the elements of the claims. As discussed below, the applied references teach contrasting methods of affixing a mirror within an optical device, which also differ from the method as recited in the claims.

The Applied References

Kawasaki

Kawasaki teaches to an optical pickup device, which affixes a half-mirror using a spring clip (41). In both Figures 5 and 6, Kawasaki shows cross-sectional views of elements of the optical pickup device. In reference to these figures, Kawasaki states, “the half mirror 32 is depressed from it one face, by a plate spring 41 disposed not to block the light path of the light beam, while the opposite edges of its other face are engaged with a portion 43 having a thick wall in a space 42 of the base 38 so as to be fixed at a predetermined position,” (col. 7, ll. 40-45). The optical device of Kawasaki uses a spring clip (41) to affix the half mirror (32) against a thick wall (43). The half-mirror (32) is “sandwiched” between the thick wall (43) and the spring clip (41), *i.e.*, the spring clip

(41) provides a force on a half-mirror (32) in one direction and the thick wall provides a counter-force of the half-mirror (32) in the opposite direction, thereby fixing the half-mirror in a predetermined position.

In contrast to the present invention, the half-mirror in Kawasaki is affixed using a spring clip. The present invention uses an adhesive at specified points on respective vertical walls to attach respective sides of the half-mirror. The Examiner acknowledges that Kawasaki does not teach how the sides of the mirror are attached.

Akira

Akira teaches an optical head device in which a half-mirror is affixed on three projections using an adhesive. The three projections extend upward from a flat base, and the half-mirror is affixed to the projection using an adhesive agent on an edge of each projection (as discussed in the background of the instant specification on page 3).

Again, in contrast to the present invention, Akira teaches using projections to affix the half-mirror. However, the present invention requires an adhesive agent at specified point on respective vertical walls on the respective sides of the half-mirror. In fact, the projections of Akira do not attach to the sides of the half-mirror but to a face of the half-mirror.

Kasahara

Kasahara teaches an optical head device having a mirror (23), which is shaped as a pyramid in one embodiment (and a cube in another embodiment). The sides of the

pyramid form a right-angle and the pyramid fitted in a corner of the optical head device as show in Figures 5 and 7.

In contrast to the present invention, the mirror is pyramid-shaped. The present invention requires a plate-shaped half-mirror. Furthermore, the Examiner admits that Kasahara is silent as to how the sides of the mirror are attached.

Iijima

Iijima relates to the manufacturing of semiconductor devices, and, in fact, is wholly unrelated to optical head devices. Iijima teaches a semiconductor device, which includes a multi-flexible substrate. The multi-flexible substrate of Iijima is configured to have insulation substrate layers and filmy adhesive layers are alternatively stacked with wiring layers. The adhesive in Iijima has a completely different application than the present invention, *i.e.*, Iijima is silent to an optical head device.

The Present Invention v. Kawasaki & Akira

Claims 1-3 were rejected under 35 U.S.C. §103(a) as being obvious over Kawasaki in view of Akira. Claims 1 and 2 have been amended in this reply. To the extent that this rejection applies to the amended claims, this rejection is respectfully traversed.

Kawasaki and Akira are not properly combinable as there exists no teaching in the references that would lead one skilled in the art to combine them and, thus, no reasonable expectation of success of the combination. Further, even if combined, Kawasaki and Akira fail to show or teach all of the limitations recited in the claims.

The claimed invention requires that a plate-shaped half-mirror is positioned in a frame of the pickup apparatus such that “a first side part of said half mirror is fixed to a vertical wall of said frame at two points and second side part of said half-mirror is fixed to a vertical wall of said frame at one point by using an adhesive agent.” On the other hand, Kawasaki is positioned in the optical head using a spring clip, rather than an adhesive agent. Additionally, affixing the half-mirror at its sides is not even mentioned. Further, Kawasaki is completely silent to using an adhesive agent, as acknowledged by the Examiner. This fact is not surprising, because there is no need for an adhesive agent in Kawasaki, because the half-mirror is positioned using the spring clip and thick wall.

Further, the Applicant asserts that because the spring clip of Kawasaki provides a means for the half-mirror to be fixed in the optical head, there is no reason to additionally use an adhesive agent. Akira teaches the use of an adhesive agent at the end of projections extending from a base. Again, Kawasaki does not provide any motivation for using an adhesive agent and, similarly, does not provide any motivation for using projections as taught in Akira. Therefore, the Applicant asserts that these references are not properly combinable.

Even assuming *arguendo* that Kawasaki and Akira are properly combined, the claimed invention is not shown by the combination of Kawasaki and Akira. In other words, the combination of Kawasaki and Akira would result in a half-mirror fixed to an optical head via a spring clip and projections extending from a frame having an adhesive agent. The combination of Kawasaki and Akira would *not* result in a first side part of the half mirror fixed to a first vertical wall of said frame at two points and second side part of said half-mirror is fixed to a second vertical wall of said frame at one point by using an

adhesive agent as recited in the amended independent claim. Kawasaki and Akira are completely silent to affixing the side walls of the half-mirror to vertical walls of the frame at the specified points using an adhesive agent.

Because Kawasaki and Akira are not properly combinable and, additionally, do not teach all of the elements of the claims 1 and 2, claims 1 and 2 are patentable over Kawaksai and Akira, whether considered separately or in combination. Claims 3 and 4, being dependent on claim 1, are likewise patentable for at least the same reasons. Accordingly, withdrawal of this §103 rejection is respectfully requested.

The Present Invention v. Kawasaki, Akira, & Iijima

Claim 4 was rejected under 35 U.S.C. §103(a) as being obvious over Kawasaki in view of Akira, in further view of Iijima. To the extent that this rejection applies to the amended claims, this rejection is respectfully traversed.

As discussed above, Kawasaki and Akira are not properly combinable, because there is no motivation to combine these references. Further, there is no motivation to combine the teachings of Iijima with Kawasaki and Akira, because Iijima is completely unrelated technology, as it relates to the manufacturing of semiconductor devices.

Again, even assuming *arguendo* that Kawasaki, Akira, and Iijima are properly combinable, Iijima fails to provide that which Kawasaki and Akira lack. In particular, Iijima does not teach “a first side part of said half mirror is fixed to a vertical wall of said frame at two points and second side part of said half-mirror is fixed to a vertical wall of said frame at one point by using an adhesive agent.”

Because Kawasaki, Akira, and Iijima are not properly combinable and, additionally, fail to disclose all of the elements as recited in claim 1, claim 1 is patentable over Kawasaki, Akira, and Iijima, whether considered separately or in combination. Thus, claim 4, being dependent on claim 1, is likewise patentable over Kawasaki, Akira, and Iijima. Accordingly, withdrawal of this §103 rejection is respectfully requested.

The Present Invention v. Kawasaki & Iijima

Claims 1-4 were rejected under 35 U.S.C. §103(a) as being obvious over Kawasaki in view of Iijima. To the extent that this rejection applies to the amended claims, this rejection is respectfully traversed.

As stated above, Kawasaki teaches a half-mirror affixed using a spring clip. Kawaskai does not provide any motivation for using an adhesive. Furthermore, the adhesive as taught by Iijima relates to semiconductor device manufacturing and does not suggest use in optical head devices. Therefore, as no teaching or suggestion exists in the references to combine them, these references are not properly combinable. However, even if the references were properly combinable, Kawasaki and Iijima do not teach or suggest the present invention, as previously discussed.

Because Kawasaki and Iijima are not properly combinable, and, additionally, do not teach or suggest all of the elements of the present invention as recited in claims 1 and 2, claims 1 and 2 are patentable over Kawasaki and Iijima, whether considered separately or in combination. Claims 3 and 4, being dependent on claim 1, are likewise patentable for at least the same reasons. Accordingly, withdrawal of this §103 rejection is respectfully requested.

The Present Invention v. Kasahara & Akira

Claims 1 and 3 were rejected under 35 U.S.C. §103(a) as being obvious over Kasahara in view of Akira. To the extent that this rejection applies to the amended claims, this rejection is respectfully traversed.

Kasahara and Akira are not properly combinable as there exists no teaching or suggestion in the references that would lead one of ordinary skill in the art to combine them. Further, even if combined, Kasahara and Akira fail to show or teach all of the limitations, as recited in the claims. Kasahara and Akira fail to teach the claimed invention as recited in claim 1. In particular, Kasahara does not teach a “plate-shaped half mirror.” As shown in Figures 5 and 7, the mirror as disclosed by Kasahara is shaped as a pyramid. Furthermore, Kasahara is completely silent to using an adhesive agent. Akira teaches using an adhesive agent, however, not on a vertical wall as required by claim 1, but on a tip of a projection.

Because Kasahara and Akira are not properly combinable and, additionally, do not teach all of the elements of the claimed invention, namely, a plate-shaped half mirror and an adhesive agent at specified points of verticals wall of a frame, claim 1 is patentable over Kasahara and Akira, whether considered separately or in combination. Claim 3, being dependent, are likewise patentable for at least the same reasons as claim 1.

The Present Invention v. Kasahara, Akira, & Iijima

Claim 4 was rejected under 35 U.S.C. §103(a) as being obvious over Kasahara, Akira, and Iijima. To the extent that this rejection applies to the amended claims, this rejection is respectfully traversed.

Kasahara, Akira, and Iijima are not properly combinable as there exists no teaching or suggestion in the references that would lead one of ordinary skill in the art to combine them. Further, even if combined, Kasahara, Akira, and Iijima fail to show or teach all of the limitations, as recited in the claims. Iijima fails to provide that which Kasahara and Akira lack. As mentioned previously, Iijima relates to the manufacturing of semiconductor devices and in no way relates to optical head devices. Iijima fails to teach a “plate-shaped mirror” or an adhesive agent at specified points of vertical walls of a frame.

For the reasons as discussed above, Kasahara, Akira, and Iijima fail to teach the claimed invention, as recited in claim 1. Therefore, claim 1 is patentable over Kasahara, Akira, and Iijima, whether considered separately or in combination. Claims 3 and 4, being dependent, are likewise patentable for at least the same reasons. Accordingly, withdrawal of this §103 rejection is respectfully requested.

V. Conclusion

Applicant believes this reply is fully responsive to all outstanding issues and places this application in condition for allowance. If this belief is incorrect, or other issues arise, the Examiner is encouraged to contact the undersigned or his associates at the telephone number listed below. Because the amendments and remarks simplify the issues for allowance or appeal, and do not constitute new matter, entry and consideration thereof is respectfully requested. Please apply any charges not covered, or any credits, to Deposit Account 50-0591 (Reference Number 04995/030001).

Respectfully submitted,

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